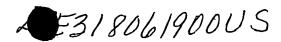E3180619000US

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CONFIGURATION OF COMPUTER SYSTEMS BASED UPON PURCHASERS COMPONENT NEEDS AS DETERMINED FROM PURCHASER DATA ENTRIES CORRELATED WITH A SET OF SELLER BUSINESS RULES TO OPTIMIZE QUANTITIES OF EACH COMPONENT SOLD

5   Cross-Reference to Related Patent Applications

The following copending patent applications, which are assigned to the same assignee as the present invention, cover subject matter related to the subject matter of the present patent application: Serial Number

10   09/159,954, filed September 24, 1998, now U.S. Pat. No. 6,336,101, entitled Tracking of Computer Components Allocated During Configuration of Computer Systems and Networks by a Simplified User Friendly Configuration Process, to Dean, Howard and Rodriguez; and, Serial Number 09/282,616, filed March 31, 1999

15   (pending), entitled Configuration of Computer Systems Based upon Purchaser Component Needs as Determined from Purchaser Data Entries and Having a Tiered Structure of Financial Incentive Levels Automatically Provided From Distributer to System

20   Resellers, to Dean, Howard, Neumann and Rodriguez.

Technical Field

The present invention relates to a process and program for the configuration of computer systems and networks provided to purchasers of systems through

25   sellers of computer components, and particularly to a program for reconciling the system needs solutions of the purchasers with the overall business rules of the seller so as to help the business needs of the seller to optimize its quantities of sold computer components.

Background of Related Art

Computers and their application programs are used in all aspects of business, industry and academic endeavors. In recent years, there has been a technological

5 revolution driven by the convergence of the data processing industry with the consumer electronics industry. This advance has been even further accelerated by the extensive consumer and business involvement in the Internet. As a result of these changes, it seems as if

10 virtually all aspects of human productivity in the industrialized world require human/computer interaction. The computer industry has been a force for bringing about great increases in business and industrial productivity. Almost every week seems to bring computer industry

15 advances which promise even further increases in productivity. These advances offer to drive down business and industry costs and increase efficiency, in addition to increasing productivity. In addition, the cost of "computer power" continues to drop as a result of

20 rapid advances in computer related technologies.

Despite all of these advantages there still remains great resistance in all industries and business fields to new computer systems and significant system upgrades, which offer much in productivity increases. This

25 resistance results from past experience, which equates installing new computer systems or significant upgrades in existing systems with large amounts of down time, during which the business, manufacturing facility or individual worker functions are inoperative or operate at

30 diminished levels. When a business or production facility is trying to decide whether to install a new computer system, the concern about down time, the possible loss of business, as well as stress on the

workers involved, very often outweighs the cost of the
installation in influencing the decision. The concern
about business and production delays resulting from
installation has become so great that fewer and fewer
5   small businesses are trying to make system and program
changes on their own. This concern is even greater when
the business is considering the installation of a
computer network. While many businesses would likely be
much more productive if their computers were inter-
10   connected with each other, the thought of a network may
be very frightening to many small businesses without much
computer experience.

Because of this expanding demand for computer and
network installations, many major manufacturers and
15   distributors of computer components, both hardware and
software, have been expending great amounts of research
and development efforts to develop programming systems
and tools to simplify and expedite such computer system
and network configuration installation and upgrades.
20   These tools may be used directly by the purchasers of the
components who are setting up their own systems and to
whom the manufacturer/distributors may sell directly.
They also may be used through intermediate providers or
resellers in the professional computer service industry
25   which carries out and supports installations and upgrades
for the business and industrial sectors. In either the
case of direct sales to the purchasers of components for
systems or through such professional installers or
resellers, distributors who have developed such system
30   configuration programs need to be adequately compensated
for their expenditures through the sale of their
components used in the systems. Both of the above
cross-referenced copending patent applications offer

now U.S. Pat. No. 6,336,101,

solutions.   In Serial Number 08/159,954, the distributer
or manufacturer of the computer components, which has
developed the process for configuring computer systems or
networks, provides to the seller or reseller a

5   configuration process comprising a prompting system for
computer purchasers to make a sequence of interactive
data entries, each of said entries relative to the data
processing needs of the purchaser of one of said computer
systems, allocating said computer components to said

10   computer systems based upon said user entries, tracking
the quantities of said computer components thereby
allocated to computer systems sold by said seller to said
purchasers during a selected time period, and determining
to forego fees due from said seller to said distributer

15   for said process when said quantities of components
thereby allocated during said time period exceed a
selected level.

Copending cross-referenced patent application
Serial Number 09/282,616
~~Attorney Docket No. AT9-98-952~~ provides the reseller with

20   a hierarchy of related financial incentive levels based
upon the sales of the manufacturer or distributer's
computer components.

Summary of the Present Invention

The present invention provides another solution

25   involving reconciling the system needs solutions of the
purchasers with the overall business rules of the seller,
i.e. the manufacturer/distributer, so as to help the
business needs of the seller to optimize its quantities
of sold computer components and thereby enhance its

30   profits.   In the present invention, the distributer or
manufacturer which has developed the process for
configuring computer systems or networks and which is the

seller of the components still provides a configuration
process comprising a prompting system for computer
purchasers to make a sequence of interactive data
entries, each of said entries relative to the data

5   processing needs of the purchaser of one of said computer
systems, allocating said computer components to said
computer systems based upon said user entries which are
indicative of the system needs solution of that
purchaser, and tracking the quantities of said computer

10 components thereby allocated to computer systems sold by
said seller to said purchasers. In addition, the
invention includes means for applying a set of seller
business rules to the tracked quantities of each of said
computer components to produce a set of optimized

15 quantities for each of said computer components based on
the seller's business needs, and means for offering to
selected ones of said purchasers modifications in the
quantities of selected ones of said allocated components
to thereby reconcile said purchasers' system needs

20 solutions with said optimized quantities of said
components based upon the seller's business needs.
Through the purchasers' cooperation in permitting the
seller to make such a dynamic reconciliation of the
purchasers' system solution needs with the seller's

25 business needs, the seller is able, through the
optimization of profits, to recoup the costs of
developing and maintaining the processes for configuring
computer systems.

    There is an implementation of the basic invention

30 wherein the means for offering to purchasers
modifications in quantities of selected allocated
components includes means for enabling the seller to
offer to said purchasers financial incentives for

accepting said modifications. There is a further
implementation, along the same lines, wherein the means
for offering to purchasers modifications in quantities of
selected allocated components includes means for

5   providing a set of business rules for reconciling said
purchasers' system needs with said optimized quantities
and means for automatically offering said purchasers
financial incentives based upon said rules for
reconciling.

10   The invention also could include means for
dynamically modifying said set of seller business rules,
as well as means for dynamically modifying said set of
business rules for reconciling.

Brief Description of the Drawings

15   The present invention will be better understood and
its numerous objects and advantages will become more
apparent to those skilled in the art by reference to the
following drawings, in conjunction with the accompanying
specification, in which:

20   Fig. 1 is a generalized diagrammatic view of a
network linking a seller with a plurality of purchaser
systems being configured with the various purchasers'
system solution objects, the sellers business rules
object, the object which reconciles the business rules

25   with system solutions diagrammatically shown in outline;

         Fig. 2 is a block diagram of an interactive data
processor controlled workstation display system including
a central processing unit which is capable of serving as
the primary server through which the seller may track the

30   allocation of components in the network of Fig. 1;

         Figs. 3 through 10 are a series of dialog panels
prompting users to make some typical illustrative data

entries which the process involving the present invention uses to make allocation of computer components;

Fig. 3 is a dialog panel for adding users to the network configuration;

5   Fig. 4 is an illustrative dialog panel for organizing users according to work groups;

Fig. 5 is an illustrative dialog panel for providing first-in/last-out employee information to provide time for backup and other off-time functions;

10   Fig. 6 is an illustrative dialog panel for the setting up of data security;

Fig. 7 is an illustrative dialog panel for establishing user profiles;

Fig. 8 is a diagrammatic view of an interactive
15   dialog screen on a purchaser's display station for the entry of data relative to another application;

Fig. 9 is a diagrammatic view of an interactive dialog screen on a purchaser's display station for the entry of data relative to application programs to be
20   installed on purchaser's client computers;

Fig. 10 is a diagrammatic view of an interactive dialog screen on a purchaser's display station for the entry of data relative to an accounting application program to be installed on the purchasers' client
25   computers;

Figs. 11A and 11B are a flowchart of the basic elements of the process program carried out by the computers in the current system enabling the system to control the data entry and system configuration including
30   the allocation and tracking of computer components used for each purchaser and for reconciling such allocations with the seller's business rules for optimizing the sellers profits; and

Fig. 12 is a flowchart of a simplified run
illustrating the process of Figs. 11A and B.

Detailed Description of the Preferred Embodiment

With reference to Fig. 1 there is shown a
5   representative diagram of a network connecting the seller
and his purchasers. The present invention, involving the
tracking of the allocated computer components to
purchasers according to system solution programs
determining purchaser needs, applying the seller's
10   business rules to quantities of allocated components and
reconciling differences to optimize seller profitability
will be illustrated with respect to this embodiment. The
purchasers who will be inputting the data and the sellers
are linked to each other through a network 56, which may
15   be a wide area network (WAN) such as the Internet or a
local area network (LAN). In the simplified illustrative
illustration shown in Fig. 1, assume that the purchasers
are inputting information through computer display
terminals 53, 54 and 55 in a local network, and the
20   seller is accessing data through server 50 and display
terminal 51. The following objects are stored in server
50 and respectively available to all elements in the
network: system solution objects 43, 44 and 45
respectively determining and allocating the component
25   needs for the purchasers inputting at computer display
terminals 53, 54 and 55; seller's business rules object
46, which functions to modify allocations of computer
components to purchasers so as to optimize seller
profitability and reconcile business rules/system
30   solutions object 47, which functions to offer
modifications in component allocations which optimize
seller profitability without significantly affecting

purchasers' system solution needs. As will be
subsequently described with respect to Figs. 3 through
10, all configuration entries and settings from the
purchasers on terminals 53 through 55 are transmitted to
5   and stored in reseller server 50. With respect to the
allocation of software computer components, as will be
seen from the subsequent description, all of the
allocated software components may be stored in
association with server 50, e.g. in its storage facility
10   59, and then distributed as needed to the network
purchasers at purchaser stations 53 through 55. The
server 50 will allocate the appropriate software
components to the users at the appropriate purchaser
terminals.

15   The programs to be subsequently described which
track the allocation of such software components will
store the allocation data in storage facility 59. As
will be described in the details of server 50 with
respect to Fig. 2, the server has access to networks such
20   as the Internet, and additional components needed for any
configuration may be accessed over such networks. Even
when all of the components are software computer
components, e.g. programs used are stored in server 50,
the number and types of allocated software programs may,
25   of course, vary since such numbers are measured by the
number of times the process will make copies of such
software for the multiple users within the purchaser to
which such programs are being allocated. The process of
the invention tracks the types and quantities of the
30   software programs used and stores this information
conveniently in storage facility 59.

The process of the present invention also allocates
and tracks hardware components including displays,

printers, disk drives and other storage devices, as well
as internal computer components. The allocated hardware
may be installed into the system being configured from
local inventories or the components may be shipped to the

5   reseller for installation. In any case, data on the
types and quantities allocated is tracked and stored.
The distributer has access to the allocation data stored
in association with the reseller on storage facility 59.

       With available present day system and programming
10   technology the system solution component allocation
functions for each purchaser, the application of the
seller's business rules function, as well as the
reconciliation function, may most effectively be
implemented with existing object oriented technology.

15   The details of how these respective objects function will
be subsequently described with respect to Figs. 11A, 11B
and 12. However, by way of background, reference will be
made here to appropriate object oriented technology,
which may be used to implement such object functions.

20   Actually, all of objects 43 through 47 in Fig. 1 are
variations of business rules objects. Accordingly, we
will first provide some object oriented technology
background and then provide some technology sources on
how to form appropriate business rules objects. The

25   computer and communications industries have extensively
participated in the development and continual upgrading
of object oriented programming systems, such as the Java
system. For details and background with respect to
object oriented programming systems such as the Java

30   programming system, C++ and others, reference may be made
to some typical texts: <u>Just Java</u>, 2nd Edition, Peter van
der Linden, Sun Microsystems, 1997; <u>Thinking in Java</u>,
Bruce Eckel, Prentice Hall PTR, 1998; and, <u>Objects,</u>

Components and Frameworks with UML, Desmond F. D'Sousa et al., Addison-Wesley, 1998. The functions to be described may be especially effectively implemented using the most recent version of Java, Java^(TM) 1.2, which is covered in

5   the text Java Swing, Robert Eckstein et al, published by O'Reilly and Associates, California 1998.

With respect to business objects or business rules objects within the object oriented business systems there is a trend towards externalizing business decisions into

10   business rules which are described and manipulated by business experts instead of basic programmers. Business objects are independently developed executables which can be redeployed as self-contained units anywhere in a network and on any platform. Flexible business processes

15   and object modeling tools are evolving that give businesses and information technology (IT) specialists a common environment to define, redefine, model and automate business processes through business objects.

Although the term "business object" has been in

20   widespread use, no formal definition existed until the Object Management Group (OMG), a multicompany organization with the mission of producing standards, took the task of developing a consensus meaning for the term. Business objects are representations of the nature

25   and behavior of real world things or concepts in terms that are meaningful to the business. Customers, products, orders, employees, trades, financial instruments, shipping containers and vehicles are all examples of real world concepts or things that can be

30   represented by business objects. Business objects add value over other representations by providing a way of managing complexity, giving a higher level perspective and packaging the essential characteristics of business

concepts more completely. We can think of business objects as actors, role players or surrogates for the real world things or concepts that they represent. The efforts of the OMG in this direction are described in

5 greater detail in Chapter 10, pp. 147-153, in the text entitled, Object Technology in Application Development, Daniel Tkach et al., Addison-Wesley Publishing Co., 1996.

Business objects allow a seller or purchaser to communicate, model, design, implement, distribute, evolve

10 and market the software technology that enables them to run their business. The characteristics of business objects include communication, modeling, design, implementation and distribution. Communication is provided through business objects which supply common

15 terms and ideas at a level of detail which can be shared among business and technical people to articulate and understand the business in business terms. Modeling is achieved because business objects have certain characteristics and behaviors which enable them to be

20 used naturally in modeling business processes, and the relationships and interactions between business concepts. The design characteristic is possible because business objects represent real world things and concepts which enable the design effort to be divided into manageable

25 chunks. Business objects meet the implementation characteristic because they have late and flexible binding and well defined interfaces so that they can be implemented independently. Finally, distribution is possible because business objects are independent so that

30 they can be distributed as self-contained units to platforms with a suitably installed infrastructure.

Many business problems are analyzed, designed and documented using an object oriented modeling notation.

The notations in the popular methodologies do a good job
of capturing the business operations between business
objects. Using one of these modeling notations,
developers build interface object models, local business

5   object models, corporate business object models and
storage object models.

Object models are used to describe objects in a
system and their relationships. It describes the system,
classes, attributes, operations and relationships in and

10   among the object entities in the system. Each object
oriented entity becomes a class in a class diagram which
depicts a graph whose nodes denote object classes and
whose arcs denote relationships between classes. In the
object model, object identifiers, their attributes and

15   their methods are described. The object model provides a
framework at which the dynamic and the functional models
are represented. For a comprehensive description on
building business objects reference may be made to the
above-mentioned text, Objects, Components and Frameworks

20   with UML, Desmond F. D'Sousa et al., Chapter 14, pp.
543-580, entitled, "How to Build a Business Model", and
to pp. 517-532, of the same text on the details of some
typical processes for creating business objects.

Fig. 2 is a diagram of a display interface

25   workstation which can function as the seller's primary
server terminal 50, 51. It will be understood that
similar workstations may function as any of the
purchasers' display terminals 53 through 55. A central
processing unit (CPU), such as in one of the PC Server

30   series of workstations available from International
Business Machines Corporation (IBM), or the Poweredge
2200 ("Poweredge 2200" is a trademark of Dell
Corporation) server from Dell Corporation, is provided

and interconnected to various other components by system
bus 12. An operating system 41 runs on CPU 10 and
provides control and is used to coordinate the function
of the various components of Fig. 2. Operating system 41

5   may be one of the commercially available operating
systems such as Microsoft's Windows NT$^{(TM)}$, IBM's
NetView$^{(TM)}$ or Novell's NetWare$^{(TM)}$. UNIX or AIX Network
operating systems may also be used. The programming
applications for controlling all of the entries and

10   consequent allocations and for tracking the computer
components to be subsequently described for Figs. 3
through 10, which are functions within the system
solution application objects 43, 44 and 45 for the
purchasers, the seller's business rules object 46, as

15   well as the system solutions/business rules reconciling
application object 47, are all represented by application
40, which runs in conjunction with operating system 41
and provides output calls to the operating system 41,
which implements the various functions to be performed by

20   the application 40. A read only memory (ROM) 16 is
connected to CPU 10 via bus 12 and includes the basic
input/output system (BIOS) that controls the basic
computer functions. Random access memory (RAM) 14, which
will provide for a portion of the basic storage of

25   entries, as well as for part of the storage of data as to
allocated computer components to be subsequently
described; I/O adapter 18 and communications adapter 34
are also interconnected to system bus 12. It should be
noted that software components, including the operating

30   system 41 and the application 40, are loaded into RAM 14,
which is the computer system's main memory. I/O adapter
18 conventionally communicates with the disk storage
device 20, i.e. a hard drive which may also be involved

in the subsequently described storage. Communications
adapter 34 interconnects bus 12 with the rest of the
network described in Fig. 1 enabling the data processing
system to communicate with the other purchasers' display
5   computers to control entry configurations and allocations
to be subsequently described. Communications adapter 34
could also function to connect server 50 to a network,
such as the Internet, over which additional allocated
software computer components may be received if needed.

10   I/O devices are also connected to system bus 12 via
user interface adapter 22 and display adapter 36.
Keyboard 24, trackball 32, mouse 26 and speaker 28 are
all interconnected to bus 12 through user interface
adapter 22. It is through such input devices that the

15   user interactive functions involved in the present
invention may be implemented. Display adapter 36
includes a frame buffer 39, which is a storage device
that holds a representation of each pixel on the display
screen 38. Images may be stored in frame buffer 39 for

20   display on monitor 38 through various components such as
a digital to analog converter (not shown) and the like.
By using the aforementioned I/O devices, a user is
capable of inputting information to the system through
the keyboard 24, trackball 32 or mouse 26 and receiving

25   output information from the system via speaker 28 and
display 38.

There will now be described with respect to the
display screens of Figs. 3 through 10, some simple
illustrations of how the data entries are made through

30   which computer components are allocated and tracked so
that the resulting data may be used by the system
solutions objects, the seller's business rules object, as
well as the reconciling object. When the screen images

are described, it will be understood that these may be
rendered by storing an image and text creation programs,
such as those in any conventional window operating system
in the RAM 14 of the system of Fig. 2. The operating

5   system is diagrammatically shown in Fig. 2 as operating
system 41. Display screen images are presented to the
viewer on display monitor 38 of Fig. 2. In accordance
with conventional techniques, the user, i.e. the
purchaser making entries through terminals 53 through 55

10   may control the screen interactively through a
conventional I/O device, such as mouse 26 of Fig. 2,
which operates through user interface 22 to call upon
programs in RAM 14 cooperating with the operating system
41 to create the images in frame buffer 39 of display

15   adapter 36 to control the display on monitor 38.

      Now, with respect to Figs. 3 through 7, we will
illustrate some of the typical data entries used in the
process of the above-mentioned copending application
Serial Number 08/159,954, now U.S. Patent No. 6,336,101, as well as in another related

20   application: Serial Number 09/118,208, now U.S. Patent No. 6,243,745, Configuring
Computer Network Operations Based Upon the Correlation of
a Sequence of Interactive Display User Entries Apparently
Unrelated to Computer Operations, filed on July 17, 1998.
The data is solicited from users so that computer

25   components may be allocated among the purchasers in the
network. With respect to Figs. 8 through 10, we will
illustrate some entries used in the process of another
copending application Serial Number 09/078,934, now U.S. Patent No. 6,052,719, filed May
14, 1998, A Stored File of Recorded Keystrokes and Cursor

30   Selections for Controlling Automatic Installation and
Configuration of Programs and Components in a Network of
Server and Client Computers, to Benzanson, Chuang and
Rodriguez. Please note with respect to Fig. 1 the data

entry panels shown in Figs. 3 through 10 may be interactively shown to purchasers on any of the displays of stations 53 through 55.

Fig. 3 shows a display panel through which the
5 current users 65 may be organized in the purchaser's organization, and new users may be entered through data entry fields 63 and 64. Fig. 4 is a display panel through which the users 65 may be assigned to functional groups 66 so that this information may be used to
10 allocate program resources. Next, the user may be prompted with a panel, Fig. 5, which will be used to allocate system backup. It prompts for employee start/leave information via data entry fields 67 and 68 so that this information may be used to set likely   .
15 computer quiescent periods for backing up stored computer data. Such quiescent periods may also be used for other off use functions such as defragmentation of files stored on disk drives, the general cleaning up of files and other housekeeping functions, such as the running of
20 antivirus routines.

The user may also be presented with a data security display panel, Fig. 6, in which data encryption key entries 69 and 70 are prompted for. In the data entry panel of Fig. 7, group and job function information
25 entries 71 and 72 are prompted for, which will be used to allocate programs for the particular user. Also, the employee's computer hours are solicited 73 and, particularly, graphic hours 74 are important since the system may use this information in an algorithm for
30 setting aside storage space to store and support the user's activities.

It should be noted that these data entry prompt panels are only a small group of potential data entry

screens which may be used to get user data entries from
which computer components to be allocated may be
determined. For example, Figs. 8 through 10 illustrate
how the present invention may operate using the data

5   entries in the system described in the above-mentioned *now U.S. patent No. 6,053,749*

unir 13 copending application Serial Number 09/078,934. Fig. 8
is a data entry panel prompting for database application
components and drivers' selections for the server
computer. Next, the screen of Fig. 9, applications to be

10   installed on client (purchaser) computers are selected
and more such selections for client (purchaser) computers
are made through the screen of Fig. 10. Note that these
selections are being made for clients is indicated by the
activation of client button 76 rather than server button

15   75.

Now, with respect to Figs. 11A and 11B, there will
be generally described the basic elements of the programs
which carry out the process of the present invention.
Only for purposes of illustration, the present invention

20   will use portions of the embodiments of the
above-mentioned copending applications Serial Numbers
now U.S. Pat. No. 6,336,101
unir 3 08/159,954 and 09/118,208. The programs of the present
now U.S. Pat. No. 6,243,745
invention will be assumed to be in the reseller's server
computer 50, which will enable the server to control the

25   data entry and allocation operations described with
respect to Figs. 3 through 10. Step 101, there is set up
for each purchaser system to be configured at terminal 53
through 55, Fig. 1, a system solution object, 43 through
45, Fig. 1, for allocating computer responsive to the

30   sequence of dialog panels, step 102, prompting entries
needed for the system solution object associated with the
purchaser terminal. Next, program routines are set up
for tracking the allocated types and quantities of

components and for storing the tracked data, step 103.
Then, step 104, a seller's business rules object is set
up which has variable attributes triggered by listened
for events in the allocations and quantities of

5   components stored in step 103 toward the overall goal of
optimizing component quantities/seller's profits. Then
there is created an object interfacing with and
compatible with the systems solutions objects for each
purchaser and the seller's business rules object's

10   results, and trying to reconcile differences between such
objects, step 105. Then, step 106, routines are provided
for offering to selected purchasers modifications in
selected allocated component quantities in an attempt to
fulfill the reconciliation offered in step 105. In

15   carrying out this step, the seller may be notified about
an offered solution and given the opportunity of
communicating with a selected purchaser, or the system
may automatically advise the purchaser of the offer.
Accordingly, step 107, a routine is provided whereby the

20   selected purchaser may modify quantities of components
offered to him in response to step 106. Also, routines
are provided, steps 108 and 109, through which the seller
may respectively dynamically modify the business rules
object or the object for reconciling the business

25   rule/system solutions results.

        Now, with respect to Fig. 12, there will be
described a modified program run to illustrate many of
the steps involved in the prompts, data entries and
storage of the entries described above for Figs. 3

30   through 10, as well as the allocation, tracking and the
seller's business rules application and potential
reconciliation with the system solution component
allocations for each purchaser. First, step 100, a

system solution object is set up for each of the
purchasers for whom computer systems are being
configured. Then, step 110, the input data, like that of
Figs. 3 through 10, is prompted for from each purchaser.

5   The data obtained is stored, step 111. The appropriate
algorithms from the system solution objects for
allocating hardware and software components are run, step
112, after which the data on allocated components, both
hardware and software: types and quantities are tracked

10   and stored, step 113, and accumulated and stored for the
seller. The seller sets up his appropriate business
rules object, step 114, deviations from the seller's
optimum quantity/profitability results are determined in
step 115. If there are No deviations, the process is

15   returned to step 110 and the process continues its run.
If the decision is Yes, there are such deviations, then
the reconciling object 47 is evoked. The reconciling
object tries to reconcile the deviations, decision step
117. If No, the deviation cannot be reconciled, then the

20   deviation is noted and stored, step 118, and the process
is returned to step 110 from which the process continues
its run. If the decision from step 117 is Yes, the
deviation is reconcilable, then, step 119, an appropriate
offer is made to one or more of the purchasers as

25   determined through the reconciling object 47. If in
decision step 120, the offer is accepted, the
modification is made, step 121. At this, or any
appropriate point in the process, a determination will be
made as to whether the session is over, decision step

30   122. If yes, then the session is ended. If No, then the
process is returned to step 110 via branch "A". If back
at decision step 120, the decision is No, the
modification is not accepted, the deviation is noted and

stored and the process is returned to step 110 also via branch "A". It should be noted that with respect to deviations stored in steps 117 and 123, that while a reconciliation may not be available at these points, the

5　process will continue and the allocated component types and quantities may change to the point that the stored deviations may form a portion of an acceptable solution.

The described implementation of the present invention is as an application program made up of

10　programming steps or instructions. Such a program 40 would be resident in RAM 14 of the server, Fig. 1, during computer operations. Until required by the computer system, the program instructions may be stored in another readable medium, e.g in disk drive 20, or in a removable

15　memory such as an optical disk for use in a CD-ROM computer input or in a floppy disk for use in a floppy disk drive computer input. Further, the program instructions may be stored in the memory of another computer prior to use in the system of the present

20　invention and transmitted over a LAN or a WAN, such as the Internet, when required by the user of the present invention. One skilled in the art should appreciate that the processes controlling the present invention are capable of being distributed in a variety of computer

25　readable media forms.

Although certain preferred embodiments have been shown and described, it will be understood that many changes and modifications may be made therein without departing from the scope and intent of the appended

30　claims.